

IUMI Policy Agenda

1. Autonomous / unmanned transports

Brief description

Unmanned transports are gaining acceptance from industry and public entities as research and innovation bring the possibility of driverless trucks and vessels closer to realization. This raises some legal and liability issues that need to be resolved.

Insurers also need to address the risks related to innovative technologies and the internet of things. New types of failure modes may be introduced due to the lack of knowledge and unforeseen interdependencies in the system design, operation complexity, and environmental challenges. Cyber-attacks, connectivity, interactions between components and between technical systems and humans, and autonomy assisted accidents are among the challenges.

To become insurable, the use of autonomous systems must rely on proper industry standards, certification and classification regimes. Verification of safe performance is crucial.

Vessels

An unmanned vessel can be both remote controlled or fully automated, and it has been suggested that the first crewless vessel will be in service by the end of the decade. Most likely, there will be a number of variations and a stepwise progress, including the use of automated technologies with a reduced number of crew on board and for certain manoeuvres.

The IMO Maritime Safety Committee (MSC) has thus far agreed to focus on the following two levels of autonomy: (1) Remotely controlled ship with seafarers on board and (2) Remotely controlled ship without seafarers on board.

Interim guidelines for trials of Maritime Autonomous Surface Ships (MASS) were finalized by MSC in June 2019. As a basic principle, these trials shall meet at least the same level of safety, security and environmental protection as required for conventional vessels.

In May 2021, MSC 103 approved the outcome of a regulatory scoping exercise (RSE) undertaken to determine the extent of the need to amend the regulatory framework to enable the safe, secure and environmental operation of maritime autonomous surface ships (MASS) within the existing IMO instruments. In April 2022, MSC 105 agreed to develop a non-mandatory, goal-based Code for MASS, potentially entering into force on

1 January 2028 as a mandatory Code through SOLAS and other IMO instruments. In June 2023, MSC 107 progressed the development of the Code and agreed in principle that the Code would apply to SOLAS cargo vessels and high-speed craft. It was further agreed in principle that the Code should contain a risk-analysis based approach, that a human master shall be responsible regardless of the vessel's mode of operation and that there was no need to amend COLREGS to accommodate MASS at this stage. The non-mandatory MASS Code is planned to be ready by 2025. The work will continue in an Intersessional Working Group until MSC 108 in May 2024. The second meeting of this Working Group was held from 30 October to 3 November 2023. The group discussed the mechanisms needed to assure that MASS provide an equivalent level of safety as currently provided for conventional ships.

The outcome of a similar regulatory scoping exercise and gap analysis of conventions was approved by the IMO Legal Committee (LEG) in July 2021, while the Facilitation Committee (FAL) approved results of their scoping exercise in May 2022.

In January 2022, the Chairs of the three IMO committees proposed to establish a joint MSC-LEG-FAL Working Group on MASS to meet intersessionally. The first meeting of the WG was held in September 2022, the second in April 2023 and the third is planned for May 2024.

There are also several other initiatives relating to legislation and insurance of autonomous vessels. These include; Comité Maritime International (CMI) has formed an International Working Group on Unmanned Vessels, Association Mondiale de Dispatcheurs (AMD) are considering how the adoption of unmanned vessels may impact marine insurance claims and the application of general average, and the International Group of P&I Clubs (IG) has formed a working group to consider liability matters. BIMCO is drafting a standard contract for autonomous vessels, adapted from the SHIPMAN 2009 agreement, and titled AUTOSHIPMAN. The contract will include provisions for autonomous vessel-related services and the operation of a remote control centre.

Trucks

Autonomous trucks have the potential to make freight transport more efficient, cost-effective, reliable, sustainable and, above all, safer. Autonomous trucks also hold the potential to solve one of the biggest problems plaguing the trucking industry – a massive labour shortage. These factors are driving the demand for self-driving trucks.

In 2019, experts from the World Forum for Harmonization of Vehicle Regulations (WP.29) – a subsidiary body of the Inland Transport Committee (ITC), the UNECE's highest political body in the field of transport, developed a Framework Document to guide the future normative work of the United Nations on this strategic area for the future of mobility. WP.29 adopted in 2021 an amendment to a United Nations Regulation on Automated Lane Keeping Systems (ALKS) that lays down the technical requirements for their use in heavy vehicles including trucks, which makes it the first binding international regulation

for the introduction of so-called SAE Level 3 vehicle automation in heavy vehicles on the roads. However, there is no harmonized, globally applicable legal framework existing. A good overview of regulations as well as strategies at national and international level can be found at [Connected and Automated Driving \(CAD\)](#).

Along with safety also liability issues become more complex as the responsibility for accidents may shift from the driver to the technology provider or other parties involved in the design, production, or maintenance of the truck. In this regard the European Commission published in 2022 its proposal for a directive revising the existing Product Liability Directive (PLD). The PLD introduced a common set of rules enabling harmonization and an equal level of protection of consumers throughout the single market using the concept of strict liability of producers for damage caused by defective products which means that the liability does not depend on fault or negligence of the manufacturer. This may raise questions regarding insurance coverage and liability. European countries typically require compulsory motor vehicle insurance to cover accidents caused by trucks. Insurance policies may also need to adapt to accommodate autonomous vehicles' related risks, such as cybersecurity incidents or liability shifts between drivers and manufacturers.

Relevant authority / organisations and documents

- **IMO – Maritime Safety Committee (MSC), Legal Committee (LEG), Facilitation Committee (FAL):**
 - **MSC98/20/13:** Comments on MSC98/20/2, submitted by the International Transport Workers' Federation (ITF), 13 April 2017.
 - **MSC99/INF.3:** Final report – analysis of Regulatory Barriers to the use of Autonomous Ships, submitted by Denmark, 18 January 2018.
 - **MSC99/INF.5:** Report of a survey on what maritime professionals think about autonomous shipping, submitted by IFSMA and ITF, 9 February 2018.
 - **MSC.1/Circ.1604:** Interim guidelines for MASS trials, 14 June 2019.
 - **LEG107/8:** Summary of results of analysis of IMO instruments under the purview of the Legal Committee, submitted by CMI, 13 December 2019.
 - **MSC102/5/16:** Summary of result analyses of IMO instruments under the purview of the Maritime Safety Committee, submitted by CMI, 11 February 2020.
 - **MSC103/5/3:** Updates to proposed terminology for MASS, submitted by ISO, 15 March 2021.
 - **MSC.1/Circ.1638:** Outcome of the regulatory scoping exercise for the use of maritime autonomous surface ships (MASS), 3 June 2021.
 - **LEG.1/Circ.11:** Outcome of the regulatory scoping exercise and gap analysis of conventions emanating from LEG with respect to MASS, 15 December 2021.
 - **MSC105/7:** Proposal by the Chair for a draft road map for maritime autonomous surface ships, 10 January 2022.

- **LEG109/13/3 / MSC105/7/4 / FAL46/14/1:** Proposal for the establishment of a joint MSC-LEG-FAL Working Group on MASS to consider common gaps and themes identified during the regulatory scoping exercises conducted by the three committees, submitted by the Chairs of MSC, LEG and FAL, 14 January 2022 / 18 January 2022.
- **MASS-JWG.1/WP.1:** Report of MSC-LEG-FAL joint working group on MASS on its first session, 9 September 2022.
- **MSC107/5:** Development of a goal-based instrument for MASS, Report of the Correspondence Group, 27 February 2023.
- **MASS-JWG2/WP.1:** Report of the MSC-LEG-FAL joint WG on MASS on its second session, 21 April 2023.
- **MSC108/WP.9:** Development of a goal-based instrument for MASS, Report of the Working Group, 7 June 2023.
- **MSC/ISWG/MASS 2/WP.1:** Report of the Intersessional MASS Working Group, 3 November 2023
- **Maritime UK & LR:** MASS UK Industry Conduct Principles and Code of Practice (V5), November 2021
- **Maritime Unmanned Navigation through Intelligence in Networks (MUNIN)**
- **Norwegian Forum for Autonomous Vessels**
- **ONE SEA Autonomous Maritime Ecosystem (Finland):** Finnish Maritime Industries, ecosystem for autonomous marine transport in the Baltic Sea in 2025.
- **European Union:**
 - Resolution on Civil law rules on robotics, 16 February 2017.
 - EU Regulation 2019/2144 on vehicle general safety (including autonomous vehicles), 27 November 2019.
- **UN:**
 - ECE/TRANS/WP.29/2019/34/Rev.1, revised Framework document on automated/ autonomous vehicles.
 - ECE/TRANS/WP.29/2020/81, uniform provisions concerning the approval of vehicles with regard to Automated Lane Keeping Systems.
- **CMI:** International Working Group on “Maritime Law for unmanned craft”; MSC 99/INF.8: Work conducted by the CMI WG, 13 February 2018.
- **Classification societies:**
 - **Lloyd’s Register:** Cyber-enabled ships – ShipRight procedure assignment for cyber descriptive notes for autonomous & remote access ships, Version 2.0, December 2017.
 - **Bureau Veritas:** Guidelines for Autonomous Shipping, December 2017.
 - **DNV GL:** Autonomous and remotely operated ships (DNVGL-CG-0264), September 2018.
 - **ABS:** Autonomous vessels white paper, February 2022.
- **CORE Advokatfirma & Cefor:** Maritime autonomous surface ships – zooming in on civil liability and insurance, 10 December 2018.
- **European Maritime Safety Agency (EMSA):** Study of the risks and regulatory issues of specific cases of MASS (SAFEMASS), DNV GL report, 25 March 2020.

- **MarLab Marine Autonomous Surface Ships Data Project**
- **UK Department of Transport:** Future of transport regulatory review consultation: Maritime autonomy and remote operations, September 2021.
- **Nippon Foundation:** MEGURI 2040 Fully Autonomous Ship Program.
- **Central Commission for the Navigation of the Rhine (CCNR):** Automated navigation work at the CCNR.
- **Society of Automotive Engineers (SAE):** J3016 202104 - Definitions for six levels of driving automation, revised 30 April 2021.
- **International Organization for Standardization (ISO):** ISO/TS 23860:2022 – Vocabulary related to autonomous ship systems, May 2022.

Timeline / important dates

- MSC scoping exercise June 2017 - June 2020.
- LEG scoping exercise April 2018 – July 2021.
- Target completion year within MSC for a non-mandatory code: 2025.
- Joint MSC-LEG-FAL WG meeting: 8-10 May 2024.
- MSC 108: 13-24 May 2024.

IUMI will:

- Monitor ongoing industry and government-run projects and provide input as appropriate.
- Monitor development of a MASS Code by the IMO and take part in discussions on regulatory amendments.
- Encourage classification societies to take an active role in both technical and operational risk aspects of increasingly autonomous vessels.
- Encourage the development of industry standards, certification schemes and class requirements for autonomous systems and remote control centres.